

## PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

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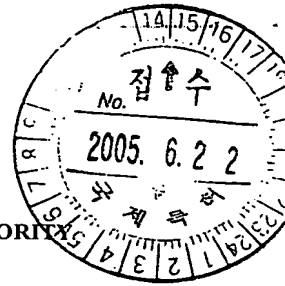
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PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)



Date of mailing  
(day/month/year) 21 JUNE 2005 (21.06.2005)

Applicant's or agent's file reference

5FPO-02-03

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/KR2005/000472

International filing date (day/month/year)

22 FEBRUARY 2005 (22.02.2005)

Priority date(day/month/year)

03 MARCH 2004 (03.03.2004)

International Patent Classification (IPC) or both national classification and IPC

IPC7 C07C 39/17

Applicant

KOREA RESEARCH INSTITUTE OF BIOSCIENCE AND BIOTECHNOLOGY et al

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

## 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/KR



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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/KR2005/000472

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
☐ This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material  
☐ a sequence listing  
☐ table(s) related to the sequence listing
  - b. format of material  
☐ in written format  
☐ in computer readable form
  - c. time of filing/furnishing  
☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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WRITTEN OPINION OF THE  
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Box No. IV Lack of unity of invention

1. ☐ In response to the invitation (Form PCT/ISA/206) to pay additional fees the applicant has:
- ☐ paid additional fees
  - ☐ paid additional fees under protest
  - ☐ not paid additional fees
2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- ☐ complied with
  - ☒ not complied with for the following reasons:

The present application contains 2 different inventions not being linked by a single invention concept; A composition containing *Torreya nucifera* extracts and an abietane diterpenoid compound.

i) Claim 1 relates to an abietane diterpenoid compound

ii) Claims 2-5 relate to a composition for the prevention and the treatment fo cardiovascular disease containing *T. nucifera* extracts as an effective ingredient. Claim 2, as an independent claim, does not refer to the abietane diterpenoid compound directly and is considered not to represent any special technical feature compared with claim 1.

4. Consequently, this opinion has been established in respect of the following parts of the international application :

- ☐ all parts.
- ☐ the parts relating to claims Nos. \_\_\_\_\_

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/KR2005/000472

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Claims	1 - 8	YES
	Claims	NONE	NO
Inventive step (IS)	Claims	1 - 8	YES
	Claims	NONE	NO
Industrial applicability (IA)	Claims	1 - 8	YES
	Claims	NONE	NO

**2. Citations and explanations :**

**1. Reference is made to the following documents:**

- D1 : Tetrahedron, Vol.58(7), 2002, pp.1262-1270, Jin-Wei Yang et al.  
D2 : Phytochemistry, Vol.59(4), 2002, pp.385-389, Yutaka Orihara et al.  
D3 : CN 1395921 A( Yi Yanghua et al.) 12 FUB. 2003  
D4 : Phytochemistry, Vol.26(4), 1987, pp.1211-1212, Harrison Leslie J. et al.

**2. Novelty and Inventive Step**

The present invention relates to a novel abietane diterpenoid compound, and a composition comprising extracts of *Torreya Nucifera* for prevention and treatment of cardiovascular disease.

D1-D4 commonly discloses abietane diterpenoid compounds from *Torreya nucifera*. However, none of the prior art documents show the abietane diterpenoid compound represented by formula 1(R is dimethoxymethyl) in claim 1. Also none of them exhibit the effects for prevention and treatment of cardiovascular disease in claim 1.

Therefore claim 1 of the present invention is considered to be novel and to involve an inventive step under PCT Article 33(2)-(3).

Claims 2-8 of the present invention is also considered to be novel and to involve an inventive step under PCT Article 33(2)-(3).

According to the background art of the present invention and D1-D4, the compounds in formula 1 - formula 5(except R=dimethoxymethyl) and extracts from *Torreya.Nucifera* are well-known in the art.

However, D1-D4 only describe *Torreya Nucifera* extracts or abietane diterpenoids and the method for extracting them. They do not disclose the compositions which are effective for prevention and treatment of cardiovascular disease and the examples such as an excellent anti-oxidative activity to LDL or inhibiting activity to ACAT enzyme. Accordingly, the claimed inventions are considered to be novel and to involve an inventive step.

**3. Industrial Applicability**

The subject matter of the claims 1-8 is considered to be industrially applicable under PCT Article 33(4).

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